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# **Maternal Health in Jamaica**

## **Health Needs, Services, and Utilization**

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The main causes of death in Jamaican women are largely preventable. Jamaican health care for women should be improved by providing more family planning services; good community-based prenatal education and screening; more training for health care workers; better community education; better health record-keeping; and better transportation for health care workers and women seeking health care services.

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Unstable unions contribute significantly to the high fertility levels in Jamaica. Women are often the sole financial, social, and emotional providers for their families. Multiple responsibilities make it difficult for them to seek health care.

High fertility is a particular problem among teen women. Jamaican teens have limited knowledge of reproduction and conception, and a pronatalist attitude (one must have a baby to attain womanhood) is reinforced by widespread misperceptions about contraceptive methods.

Women often fear contraception will alter their menstrual patterns, make them irreversibly sterile, or in other ways harm them. Many women believe, for example, that intrauterine devices can get lost in their body or will hurt their sexual partners; some visualize tubal ligation (tying the tubes) as tying the vagina so they can no longer have sex. There is a great need for health education to overcome such misperceptions, which may block demand for family planning services.

The main health issues for Jamaican women are nutrition (anemia significantly affects pregnant women), fertility, infection, chronic diseases, and stress and social problems. The two leading causes of adult death for women are cerebro-vascular accidents and coronary heart disease — of which high blood pressure is a major component among black women. Infections that affect women include those resulting from sexually transmitted diseases, inappropriate care for abortions and childbirth, and poor hygiene associated with menstruation.

Congenital anomalies and perinatal morbidity are common causes of infant mortality and are believed to be the result of high fertility in older women and teens. Prematurity is a problem, as are intrapartum asphyxia, diarrheal diseases, and malnutrition. Early weaning was identified in the late 1960s as the most important cause of malnutrition and infant mortality in Jamaica.

The main factors causing stress for Jamaican women include unemployment, economic inadequacy, separation of partners, male promiscuity, limited availability of schooling for children, unreliability of goods and services, and violence. Proposed reforms include maternal education, directed economic development, targeting women's ability to gather resources and lower the burden of household responsibilities, and sociopolitical campaigns to increase women's ability to attain ideal fertility levels at appropriate ages and to get medical care when they need it.

The Jamaican health care system needs more family planning services for those who want them; good community-based prenatal education and screening and hospital delivery for high-risk pregnancies; better training of health professionals and paraprofessionals, including midwives, with special attention to the professional isolation of rural health care workers; better community education, including better training of professionals to communicate with their patients; better health record-keeping; and better transportation, so midwives can visit their patients more often and so women can spend less time getting to health care providers.

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## 1 INTRODUCTION

This literature review gathers information on Jamaican health services, social problems, and maternal health. The review begins with some background on Jamaica and goes on to the epidemiology of the major, pregnancy-related, health problems affecting women. The review then broadens to see how childhood and other health experiences prior to conception may act as factors placing women at risk during pregnancy. The available health services, including family planning and prenatal care, are described along with current levels of utilization. Gaps in services will be identified as will potential barriers to access for particular sub-groups. The review ends with a discussion of issues that could be explored in upcoming studies in Jamaica<sup>1</sup>.

## 2 BACKGROUND STATISTICS ON JAMAICA

In 1985, the population of Jamaica was 2.2 million with a crude birth rate of 24/1,000 and a fertility rate of 3.5 births per 1,000 women of reproductive age (Folta, 1988; Jamaica-MOH, 1989). Life expectancy at birth is 70 years (World Bank, 1987). If there is no reduction in fertility and no major changes in rates of emigration, there will be a population of 3.5 million by the year 2000 (World Bank, 1987). Currently, it is estimated that between 40 to 58% of the population lives in rural areas and that in these areas, problems of poor communication, bad roads, and difficult access persist (Mitchell, 1983; Dressek, 1988). The population is roughly 90% of West African descent, 6% Afro-European, and 4% is made up of East Indian, Afro-East Indian, Chinese, Afro-Chinese, and European (Mitchell, 1983). The original island inhabitants, the Arawak Indians, had been killed off by the time Britain took over the island from Spain in 1655.

Jamaica is characterized by relatively high levels of both fertility and female labor force participation; furthermore, 32% of the households in Jamaica are headed by women. This means women are simultaneously mothers and market workers, and are very often the primary wage-earner (Powell et al., 1988). The multiple responsibilities of women may be the cause of another social practice quite common in Jamaica—"passing on"—giving children up to another care-taker. In a sample of 131 women with living children, 57% passed on a total of 121 children (Brody, 1981); 58% of the children went to maternal grandmothers. Roberts & Sinclair (1978) found that of the women who gave their children away, 60% reported economic reasons for doing so; 50% reported the need to work. When one considers health service utilization it will be important to remember the multiple responsibilities of women and consider the limited resources they may have (time and money) to use to get medical attention. Recognizing the economic importance of women also adds

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<sup>1</sup> This literature review is complete up until July 1989. At that time, the Ministry of Health in Jamaica was completing the final report of its Perinatal Mortality and Morbidity Study which contains pertinent information on the state of prenatal care, performance of birth attendants, and maternal and infant health status. Some reference is made in this review to findings from this study; the reader is urged to go directly to the full report for more information.

weight to the tragedy of maternal death; if the woman was a major contributor to the household income, or indeed if she was the sole provider, who will care for the surviving children of the deceased mother?

Another special characteristic in Jamaican society is the low prevalence of legal marriage. Stycos and Back (1964) first described the four categories of union which are now referred to by all researchers: married, common law, visiting relationships, and single. Marriage is normally entered into later in life and is associated with considerable improvements in a woman's social status (Bracken & Kasl, 1973). Common law relationships are stable cohabiting unions considered by some to be the equivalent of marriage. Blake (1961) found that few of these lead to marriage among the lower class Jamaicans; others have suggested this may vary in urban and rural areas and in fact, common law relationships could lead to marriage. Visiting relationships are non-cohabiting sexual relationships which persist for variously defined periods of time. Brody (1981) found that the unions which lasted longest were associated with more consistent contraceptive use and greater partner communication. Women in a visiting relationship, who had high numbers of partners and children in the past, were more likely to pass on children born in the current relationship (Brody, 1981). The union status of women from the Perinatal Study broke down as 43.8% in a visiting union, 36.4% common law, 14.6% married, and 5.2% not with husband or boyfriend, or other (Jamaica-MOH, 1989).

The prevalence of unstable unions has been blamed for high fertility in Jamaica. Blake (1961) found that women were aware of the financial demands of large families and wanted smaller ones but chose to have children for the partner in their present union so he would not "become bored". Additionally, children from a terminated union remain with the mother; men who desire parenthood must get children in their present unions (Brody, 1981). Unstable families are created and disbanded then as sexual unions are formed and broken. Brody claimed, on the basis of an analysis of sex, contraception, and childbearing, that "coitus and parenthood seem more important for the man and woman as individuals rather than as members of a partnership". Brody also believed that young women entered into childbearing to break from their parents and to establish themselves as women; the first union was unimportant except as a vehicle to get the pregnancy.

### 3 MATERNAL HEALTH PROBLEMS AND NEEDS

One problem in studying maternal health is getting accurate counts of morbidity and mortality and measuring the incidence and severity of chronic disability. Countries use varying definitions of what constitutes a maternal death; the International Classification of Diseases (ICD)-9 definition says, "A maternal death is defined as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes." ICD-9 further divides maternal deaths into direct and indirect causes--indirect being due to preexisting conditions aggravated by the pregnancy. Many countries fail to distinguish deaths by timing relative to pregnancy termination or according to direct or indirect causes.

Countries also differ in the reported numbers of deaths due to the various maternal causes. Some sources of these deviations are that countries may not record the cause of death (some report up to 60% of female deaths due

to "unknown" causes--Royston & Lopez, 1987), or they may not identify the pregnancy and thus mislabel the maternal death as being due to some other "adult" cause, many deaths simply go uncounted, and some have mislabeled maternal causes. In countries where abortions are illegal, for example, deaths due to abortion may be masked as deaths due to hemorrhage or sepsis or even non-maternal causes. The maternal mortality ratio uses live births for the denominator as an estimate of number of pregnancies. Where unreported abortions are high this estimate deviates from reality and underestimates conception; the maternal mortality ratio may appear artificially high. Royston and Lopez (1987) discuss methods of getting estimates for maternal mortality where official registration of deaths is incomplete or inaccurate (even in the United States registration data are believed to underreport deaths by about 25%). These include hospital estimates, cause of death inquiries, and household inquiries (the latter are less valid for counting deaths; they are better for elucidating social, logistic and medical causes of death).

The maternal mortality ratio in Jamaica, derived from cause of death inquiries between 1981 to 1983, was 108 deaths per 100,000 live births (Walker et al., 1986); this figure includes deaths from abortions and is nearly three times the rate obtained from national registration data (48/100,000). The Walker report was the result of a re-established Maternal Mortality Committee in the Ministry of Health and the results sparked further interest in maternal health in Jamaica. The maternal mortality ratio for Jamaica of 108/100,000 live births does not use the ICD-9 classification, rather it includes deaths up to one year past delivery or termination if they are related to the pregnancy. The same study came up with a ratio of 102/100,000 using the ICD-9 definition.

The most common causes of maternal death in Jamaica are hypertensive diseases of pregnancy (26%), hemorrhage (20%), ectopic pregnancy (10%), pulmonary embolism (8%), and sepsis (8%) (Walker et al., 1986). These are overwhelmingly preventable causes. Death is also closely related to age and parity; the lowest rates are for women of para 2-4 aged 20-24 years and para 3-4 aged 25-29 years.

Maternal mortality is difficult to study as it is a relatively rare event; morbidity, alternatively, has not yet received the same international attention as mortality has. Only one study has ever measured the ratio of maternal morbidities to deaths; this study, based in rural India, found there were 16 morbid events for every death (Datta et al., 1973). Alternative outcome measures that one can investigate for maternal health are: lost productivity due to pregnancy complications or childbirth, the degree to which women reassign their responsibilities during illness, incidence of low birth weight, and perinatal mortality or morbidity. The thorough study of perinatal health by the Ministry of Health in Jamaica provides valuable insights to problems and conditions affecting the health of the mothers as well. We can also learn more about maternal health by studying women's health in general.

The health problems of women in Jamaica were discussed at the First International Congress on Women's Health Issues in 1984 (Segree, 1985). In ways that are similar to women in other developing countries, Jamaican women are interesting for study because 1) the women's physiology and lives are closely related to their reproductive functions, 2) women's health is reflected in the health of their children and families, and 3) women are

often the sole financial, social, and emotional providers for their families. Segree claims the main health issues in Jamaica are: nutrition, fertility, infection, chronic diseases, and stress and social problems. These categories are used below as a framework to guide the discussion on women's health.

### 3.1 ANEMIA

Anemia stands out as the most significant nutritional disorder impacting on maternal health. About 55% of all pregnant and lactating women in Jamaica are currently believed to be anemic; the iron deficiencies are believed to be due to inadequate intake of necessary nutrients, low levels of absorption, short birth intervals, and high fertility (World Bank, 1987). In 1976, an island-wide survey found that 61.6% of pregnant women and 69.1% of preschool children had hemoglobin levels below 11g/dl<sup>2</sup> (Simmons et al., 1982). Anemia deficiencies were more pronounced in women in the second or third trimester of pregnancy. There was not a significant difference between urban and rural experiences; however, there were some parish variations which were attributed to dietary differences--women in the areas with low incidence of anemia were more likely to have family goats and gardens and to grow vegetables, peas, and red kidney beans. The higher incidence areas are more likely to have farms of bananas, oranges and sugar cane. Jamaica has addressed the need for anemia prevention by implementing food fortifications (mainly of imported wheat), oral supplementation in prenatal clinics, educational units for health employees, and public health measures to enhance iron absorption such as parasite and safe-water controls (Simmons, 1980).

Jamaica also has relatively high levels of endemic sickle cell anemia. Although this is a genetic condition and not a nutritional problem, sickle cell, like nutritional anemia, calls for special obstetric protocols including "aggressive" prenatal and delivery care and postpartum monitoring for evidence of complications (Morrison, 1987). Sickle cell disease, coupled with pregnancy, creates a risk of sickle-cell crisis and the woman is more susceptible to infection, pregnancy-induced hypertension, and other complications. Sickle-cell disease is also associated with growth retardation of the fetus and "significant perinatal wastage" (Morrison, 1987). In an hospital outcome study of 664 pregnancies in 297 Jamaican women with homozygous sickle cell disease between 1959 and 1984, the spontaneous abortion rate was 118/1,000 births, the stillbirth rate was 128/1,000 births, the perinatal mortality was 171/1,000 births and the maternal mortality was 1100/100,000 live births, all of these are significantly higher than levels in the general population (Poddar et al., 1986). The fetal and infant mortality experiences in the sample increased with time indicating greater survival and pregnancy rates among the women with sickle cell disease and an increasing likelihood to abort as the women grew older. The infants born to women with sickle cell disease had lower birth weights (an average of 2,720 grams compared to a hospital average of 3,110).

### 3.2 FERTILITY

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<sup>2</sup> A significant anemia during pregnancy is usually defined by a hemoglobin concentration less than 10g/dl. Significant anemia places the woman at greater risk of hemorrhage, infection, and death (Abrams, 1989).

The total number of women in the reproductive age group (15-49) was 497,000 in 1980 and grew to 605,000 in 1985. Projections estimate the numbers will swell to between 800 to 900 thousand by the year 2000 (World Bank, 1987). In Jamaica, the problem of teen pregnancy is dramatic; not only because fertility peaks at age 20-24 in Jamaica (compared to a peak between 25 and 29 in industrialized countries), and 40% of Jamaican women 15-19 have one to two children before they turn 20 (Jamaica-NFPB, 1984), but also because a large proportion of the population is young--51% was under 20 years old in 1980 (Segree, 1985). These factors combine to create both high fertility and high adolescent fertility, the latter being a risk factor for maternal and infant health.

The Contraceptive Prevalence Study in 1983 showed that teens 15-19 accounted for over 28% of births and 44% of abortions (Jamaica-NFPB, 1984). The Perinatal Study also found that over one-quarter of deliveries were to teenagers (Jamaica-MOH, 1989). Moreover, these teens, 15-19, are increasingly younger at first birth. The mean age at first live birth from current union was 19 in 1977 and dropped to 16.4 years in 1983 (World Bank, 1987). Many young women believe they must have children to make the transition from being a daughter to being a woman (Brody, 1981). Very few women in Brody's study had used contraception before giving birth to their first child. The girls claimed the contraceptives are dangerous or indicated that they didn't care enough to try avoid the first pregnancy (Brody, 1981).

More than 70% of births in Jamaica were to unmarried women; when the single parent is a teen the social impact is greater and more likely to have lasting negative effects. Commonly the teen pregnancy results in the early termination of education, restricted labor opportunities and higher unemployment, social dislocation, a restricted future, and the beginning of an unsatisfactory "reproductive career" (Brody, 1981). Surprisingly, the mortality experience of the teens from maternal causes is not high. This is probably due in part to the selection of all teens and primiparous women for delivery in hospitals (Jamaica-MOH, 1989). An earlier study had found similar indications of over-all good obstetric performance by adolescents in Jamaican hospitals and attributed their good results to prenatal care participation (Hay & Boyd, 1973). The earlier study did find a slightly higher incidence of hypertension, stillbirth, postpartum hemorrhage, and premature deliveries among the younger mothers.

Several programs designed for pregnant and parenting teens have been implemented in Jamaica. Some, like the Duhaney Park Project, focus on prevention of pregnancy and the development of self-esteem and self-sufficiency (Vadies & Clark, 1988). Teens were initially drawn into the Duhaney program for family planning and sexually-transmitted disease services. Other programs have focused on meeting the unique needs of pregnant teens and teen parents. The first teen parent project was sponsored in 1978 by the Jamaican Women's Bureau in response to the high pregnancy and school drop-out rates among teens. There had been an implicit policy that girls who became pregnant were unwelcome in schools. The Women's Centre provided classroom instruction for pregnant women ages 12 to 16 and worked with them to prepare them to return to school. The center also offered, with more limited success, skills training and job placement assistance to unmarried, unemployed mothers 18 to 24 (Mc Neil et al., 1983). The drop-out rate among girls who become pregnant remains high; in the Young Adult Reproductive Survey (Jamaica-NFPB, 1987) one-third of the females were still



in school when they became pregnant, of these only 19% returned.

Teens in Jamaica have limited knowledge of reproduction and use of contraception. Recent surveys on adolescent knowledge and attitudes concerning reproduction (Jamaica-NFPB, 1987; Brody, 1981) found very low numbers of respondents able to explain the reproductive process and describe contraceptive methods. Over three-fourths of males and females from the Young Adult Reproductive Survey (Jamaica-NFPB, 1987) reported that their first live birth was unintended. The survey also found that young women were more traditional than men in attitudes towards women's roles in spite of the numerous programs in Jamaica promoting more modern roles for women. A larger percent of women than men supported the premise that a woman should work in the home and agreed that women should not have extra-union affairs. Women were less traditional concerning children however, 85.4% of the females compared to 66.5% of the males agreed it was okay for a woman not to have children if she doesn't want them. Girls were also almost four times as likely to have used contraception at first intercourse than were males (40.1% versus 11%). Both sexes agreed that the male should be financially responsible for any babies (98.8% females, 98.6% males).

The Perinatal Study (Jamaica-MOH, 1989) found that despite a low 12% of women wanting a pregnancy, 43% have never used any contraception. Family Planning services are readily available, yet there has been a long noted lack of use (Blake, 1961; Stycos & Back, 1964; Jamaica-NFPB, 1984; Brody, 1981). Women are quoted saying they "decided to take a chance" often because of inertia, they could not discuss contraception with their partner, or because they feared the contraceptive methods' side effects. Many believe they are destined to bear a certain number of children and so they may as well get on with it (Brody, 1981). Further reasons for not using family planning are discussed in the section on Family Planning Services.

The pro-natalist attitudes found in all the surveys may contribute to the problems of teen pregnancy and high fertility. Most respondents are unequivocally negative about being unable to have a baby and these feelings seem completely unrelated to the likelihood of women giving their babies up to others to raise. Women voice the need for companionship when they are older as the reason for having children; the companionship is expected to come from daughters. Negative feelings toward infertility are tempered by time and the fertility experiences of the woman (Brody, 1981). Women who had larger numbers of children from multiple partners are less likely to feel as intensely about infertility. Younger and rural women are the most concerned.

### 3.3 INFECTIOUS AND CHRONIC DISEASES

Jamaica has made the transition from main cause of death being due to infectious and parasitic diseases to being the result of chronic and degenerative disabilities. Currently, the two leading causes of death for adult women are cerebrovascular accidents and coronary heart disease (Jamaica-MOH, 1989); because cerebrovascular disease is more common, high blood pressure is a major component of adult morbidity and mortality. This is consistent with worldwide concern over the greater risks of high blood pressure in black populations, and it explains the importance of eclampsia and hypertension in Jamaican maternal mortality.

Important infections that affect women in Jamaica include those that are the result of sexually-transmitted diseases (STDs), inappropriate care for abortions and childbirth, and poor hygiene associated with menstruation

(Segree, 1985). The most common STDs in 1985 were gonorrhea, syphilis, and mixed vaginal infections.

Chronic diseases create problems with utilization of health services because 1) symptoms are not easily recognized and are thus likely to remain untreated until they become complicated and cause disability, 2) work restraints or 3) lack of funds may delay seeking-of-care until conditions become serious (Segree, 1985)--perhaps during pregnancy when they are aggravated.

### 3.4 STRESS AND SOCIAL PROBLEMS

The major factors causing stress for Jamaican women are summarized as: unemployment, economic inadequacy, separation of partners, male promiscuity, limited availability of schooling for children, unreliability of goods and services, and violence (Segree, 1985). These social concerns have important health implications, particularly for maternal health. The American Nurses Association, in setting out guidelines for prenatal care, stressed the importance of identifying and addressing factors causing stress in order to adequately provide for the health of the prospective mother (American Nurses Association, 1987).

In order to improve the outcomes of pregnancy and delivery through reductions in stress and social problems, reforms in a number of arenas are usually necessary. Maternal education is the most commonly proposed reform, but others include directed economic development targeting women's ability to gather resources and lower the burden of household responsibilities, and socio-political campaigns which increase the ability of women to attain their ideal fertility levels at appropriate ages and to get medical care when they need it.

In spite of literacy estimates of nearly 90% (1984), school drop-out rates are high in Jamaica and remain a barrier to maternal education (World Bank, 1987). Unemployment is also high; the rate of unemployment was around 25.5% in 1984 and has remained close to that level (World Bank, 1987). Moreover, unemployment differentially affects the young and women. In October 1983, the total unemployment rate was 27%; the rate for 14-24 year olds was 48.2% and the rate for female 14-24 year olds was 65.2% (Segree, 1985). Unemployment is significant because the majority of Jamaicans are unmarried, especially the younger ones, and this results in single parent families with unstable earning power. One Jamaican study found that most young mothers are dependent--on partners mostly (58.8%), and parents (30%) or other relatives (8.6%). Studies of infant nutrition also found that the children of young, unemployed, and single women were particularly vulnerable (Bailey, 1988) and that poverty, not neglect, was responsible for the failure of children to thrive (Sheffer et al. 1981). The most common female occupations in decreasing order are domestic work, street traders, clerical, semi-skilled, and hairdresser or other service. There is considerable room for improving the economic potential of women and thereby improving their health and that of their families.

Reducing exposure to the stress causing agent is one part of good care. One must also watch for stress relieving behaviors which are health threatening such as promiscuity or tobacco, alcohol, and other substance abuse. Although studies on marijuana use in Jamaica have produced no evidence of deleterious cognitive effects for the infants (Hayes et al., 1988), the drug's general popularity and suspicions of long-range functional

impairment from placental transfers are adequate cause for continuing concern. On the bright side, the Perinatal Study reports fairly low use of these substance by pregnant women: 7.3% used tobacco, 2% smoked cannabis, and 17% drank alcohol (68% of these reported one drink or less per week) (Jamaica-MOH, 1989). Preliminary results of the study also reported moderate levels of support seeking by pregnant women when feeling "sad" and needing help during the pregnancy: 51.2% received this help from the baby's father, and 35.5% from the woman's mother (Jamaica-MOH, 1987).

#### 4 INFANT AND CHILD MORBIDITY AND MORTALITY

The conditions of a child's health can determine the health of the adult; therefore, it is worth looking at the major health concerns of children in Jamaica. Additionally, as we see how mothers are feeding and caring for their children we get more of a sense of the conditions of motherhood and the constraints faced by the women.

Congenital anomalies and perinatal morbidity are common causes of infant mortality in the world and are believed to be the result of high fertility in older women and teens (World Bank, 1987). The rates for the various categories of malformations are comparatively low in Jamaica (Jamaica-MOH, 1989) though there appears to be some clustering by region, time, and birth weight. St. Ann, Trelawny, Manchester, and Westmoreland had 20% higher risk than expected; further, there was an increasing risk of finding congenital defects as birth weight increased.

Results from the Perinatal Study indicate that low birth weight is less a concern than prematurity. The study also found that the largest group of perinatal deaths is due to intrapartum asphyxia; significantly, these are the deaths which have been the most responsive to interventions in the West (Lofgren & Polberger, 1983). Potential impacts by improving obstetrical services are discussed further in the section on Delivery Services.

Other major health problems for infants include diarrheal diseases and malnutrition (Grantham-McGregor, 1982; Melville et al., 1987; Powell et al., 1988; Sheffer et al., 1981; Bailey, 1988). Fonaroff (1975) claimed that hospital admissions and deaths for children 1 to 5 years of age were mostly for malnutrition and gastroenteric diseases. The malnutrition experienced then may have important implications for maternal health now if the effects were lasting; the children who suffered impaired development during the 1970s are delivering babies now. Fortunately, there does not seem to be any evidence of unusually high numbers of obstructed births as is commonly seen in Africa as a result of child malnutrition. Also, comparisons made between 1970 and 1978 found decreasing incidence of protein-calorie malnutrition in children under 5 (from 50.2% at normal weight to 61.1%; World Bank, 1987). Improvements may have leveled off however; in 1978 6.8% of preschool children were moderately malnourished and 1% were classified as severe. In 1985 6.9% were moderately, and 1.1% were severely, malnourished (Powell et al., 1988).

Malnutrition in young children in the Third World often has its roots in lack of breastfeeding or poor weaning practices which, coupled with diarrhea, result in chronic infections, weight loss or failure-to-thrive, and nutritional deficiencies. Early weaning was in fact, identified as the single most important factor causing malnutrition and infant mortality in Jamaica in the late 1960s (Jelliffe, 1968). The government responded and in 1977 launched a public health education campaign with the promotion of breastfeeding as one of the five main messages (Baer, 1981). The campaign

was terminated within the year due to a shortage of funds, but an unexpected side-event furthered the cause. In an effort to preserve Jamaica's foreign exchange reserves, infant formula had been placed on a list of foods subject to severe importation restrictions; shortly thereafter, studies in rural areas seemed to indicate a return to breastfeeding (Baer, 1981).

Breastfeeding was studied between 1975 and 1976 in Jamaica as part of the World Fertility Study; results showed high rates of initiation of breastfeeding but low continuation rates (this is often the case when women must work and can not arrange the schedules required for breastfeeding). The median age of weaning was 6 months, and by 12 months of age, only 12% of the infants still breast fed (Singh, 1982). In the Contraceptive Prevalence Survey by the National Family Planning Board in 1983, 97% of the women breast fed their infants of the preceding five years but they also weaned these infants early--the median age was 3 months (Jamaica-NFPB, 1984). It is difficult to tell whether breastfeeding is declining because of shorter durations or whether perhaps, breastfeeding continues but supplementation has increased. In any case, the high prevalence of breastfeeding at birth is believed to be partly responsible for the relatively long intervals between pregnancies (Jamaica-MOH, 1989).

#### 5 THEORY BEHIND IDEAL MATERNAL HEALTH SERVICES

Among the studies which recommend service patterns for maternal health in Third World countries are Ratnam & Prasad (1984), Maine (1981), Herz and Measham (1987), Weston (1986), and Lettermaier et al. (1988). The first step is to provide family planning services to those that want them. Family planning acts on maternal mortality in a number of ways: first, unwanted pregnancies are avoided reducing the demand for abortions and the likelihood of having an apathetic mother who ignores her own and her fetus's health needs; second, parity is kept low--higher parities are at risk for complication; third, family planning reduces the overall risk pool by reducing the total number of pregnancies (this effect can be quite large (Walsh et al., 1989)); fourth, family planning can be used in conjunction with the community health program to identify women at risk and reduce the number of pregnancies these women will have (called targeted family planning). We normally do not see a change in the maternal mortality ratio when we focus on family planning alone; however, the effect is quite obvious when we look at changes in the maternal mortality rate (deaths /100,000 women of reproductive age). The rate is an indication of the quality of both family planning and obstetric care (Fortney, 1987).

The second health services priority is providing good community based prenatal education and screening. A large number of complications can be avoided through proper education. Barring that, early identification and treatment of complications can prevent them from later becoming aggravated and causing disability or death. Women can be taught warning symptoms to watch for and thus can help identify conditions before they become aggravated. Finally, women can be screened for major risks and then sent to better facilities, outside of the community if necessary, for delivery care. Though direct evidence for the effect on outcomes of particular components of care is lacking, it is generally accepted that prenatal care improves the likelihood of better pregnancy outcomes. The Children's Defense Fund (1988) claims, for example, that the disparity in black and white maternal mortality rates in the United States is due to their differences in access to prenatal

care. They draw this conclusion because the causes of death in black women are largely preventable, as in the Jamaican case, and few of the women obtain what is considered adequate prenatal care. The maternal mortality ratio for black women in the United States is 20.4/100,000 live births which is nearly four times the white ratio, 5.2/100,000. Like the black women in the United States, Jamaican women have relatively low prenatal care participation rates.

Training is an important part of improving services, and it should include in-service training to existing staff to bring their skills up to date. Additionally, monitoring and supervision are required to ensure that services theoretically in place actually exist at the intended quality level. Proposed services to include in training are: review of aseptic techniques, blood transfusions, application of oxytocic for hemorrhage, and antibiotics for long labor. Though controversial, there is some discussion of training nurses in isolated areas to do surgeries. The training must be adapted to local circumstances and need. Through moderate investments in training and supervision, and some equipment and facility improvements, delivery services can be greatly enhanced.

#### 6 HEALTH BELIEFS AND UTILIZATION OF FORMAL SERVICES

The popular culture in Jamaica, perhaps because of its roots in slave and colonial cultures and due to periods of resistance and self reliance (Campbell, 1980), has popular medical concepts which encourage self treatment by traditional and over-the-counter medications. Medicines are chosen as they adhere to popular notions of disease etiology; purgatives for example, have been used for abortions because they "cut" the womb (Mitchell, 1983). Problems arise because most people do not understand the western medicines and doctors do not explain their prescriptions. When prescribed medicines do not have the physical characteristics which fit the local concepts of what is needed, they are not used. Over-the-counter medicines, on the other hand, are easily abused; many are purchased for ailments which they are not designed for but for which they fit the popular medical notions. The use of traditional healers and the choice between western and local medicine have been studied in Jamaica (see for example: Hogg, 1961; Long, 1973; Seaga, 1956), but very little has been said about the traditional practices surrounding reproductive health medicine. A preliminary release of the Perinatal Study reported some use of home remedies during pregnancy. The most popular items were teas which were mainly used for gas and nausea (Jamaica-MOH, 1987).

Studies on women's beliefs about contraceptive methods and their knowledge of reproduction found that women worried about altered menstruation, irreversible sterility, and other consequences of contraception. These worries were translated into low use of family planning services; 42% of one sample had never used contraceptives and many of the remaining women only used them sporadically (MacCormack, 1985). Common misperceptions were: intrauterine devices (IUDs) could get lost in the body; the IUD--believed to be located in the vagina--causes pain to the women's sexual partners; the contact of the IUD with menstrual blood and semen over time causes it to become dirty and to smell; Depo-Provera blocks a woman's tubes so she doesn't menstruate--this causes high blood pressure as the menstrual blood held in the body accumulates; the pill acts as a physical barrier--one needs castor oil to reduce the build-up of pills over time; pills cause "clots"--these can be seen in the menstrual blood; tubal

ligation--tying the tubes--is visualized as a tying of the vagina which means a woman can no longer have sex. Women did not object to contraception, most women knew the indigenous method of ingesting bluing for fertility regulation; they did however display a need for health education to overcome misperceptions which may be blocking their demand for family planning services.

The Ministry of Health in Jamaica estimates that 90% of the population has access to the Ministry of Health's primary care program, but only 60% of the population takes advantage of the preventive services offered (Folta, 1988). Only 20% of pregnant women received prenatal care before the 16th week, only 35% of new mothers received postnatal care, and only 40% of all newborns received well-baby care. Who is not using the services that are offered and why? In this instance, prenatal care utilization has been measured by point-of-entry into the system; would it look as bad, or worse, if we had looked at total number of visits, or at the content of services received throughout the prenatal period?

Abbas and Walker (1986) and Monteith et al. (1987) looked at the determinants of utilization of maternal and child health services. Monteith found in Panama and Guatemala that membership in a rural minority group, low education, high parity, maternal employment, and the kind of facility last delivered in were negatively associated with use of maternal health services. Abbas and Walker found that women in Jordan with higher levels of formal education that lived closer to services were most likely to use them. Similarly, Bamisaiye (1986) found a negative impact by waiting time on maternal and child health service acceptability and coverage in Nigeria. It is particularly important to look then at out-of-pocket costs for services, the travel and waiting times, demographic barriers to access, and women's perceptions of what they get out of care. It is also useful to be able to measure demand relative to a perceived need for care--do women know they are at-risk or in need of services? Leslie and Gupta (1989) looked at cultural factors in a number of countries which determine women's use of formal services for maternal health. They found surprisingly, that women were more likely to attend prenatal services at a clinic than they were to deliver there if the country had strong cultural biases toward traditional birth attendants. In the United States formal prenatal care is more likely to be the lesser utilized service.

Studies of the determinants of utilization will be particularly important in determining consumer price elasticities for clinic services. It just may be true that patients would be willing to pay for maternal health services if they are then guaranteed shorter waits or better care. This would only work if they believe the services have something to offer and the services are properly aligned with the cultural context.

Utilization of family planning services is somewhat more complex. The usual factors entering into a decision to use medical services are compounded by fertility decision-making. A woman must first decide not to become pregnant, must consider her sexual partner's degree of complicity, her own feelings about contraceptive methods (and knowledge of the reproductive system as discussed above), and then consider clinical features which affect her choice to attend. In addition, family planning is only effective if it is continued; studies in Jamaica have looked at the reasons for "dropping-out" of family planning services (Bracken & Kasl, 1973) and the outcomes of those that drop-out (Bracken, 1986). The results of these utilization

studies in Jamaica are discussed in the section on Family Planning Services. Prior studies in other countries found that women dropped out of clinics because of transportation difficulties, pregnancy, poor service, characteristics of the particular method, preferring private physicians, or no longer needing birth control (Creedy & Polgar, 1963; Reynolds, 1970; Hall, 1969). The variables affecting continuation then, come in three classes 1) those describing the client, 2) those describing the social milieu, and 3) clinic and method characteristics (Bracken & Kasl, 1973).

## 7 EXISTING HEALTH SERVICES

Jamaica has achieved levels of health close to those of developed countries despite the fact that in 1920 its level of health was similar to that of the poorest sub-Saharan countries today. The achievements have been attributed to basic public health measures, improved medical technology, increasing incomes, literacy, and public awareness of health matters, and the emergence of national commitment on the part of health professionals (Cumper, 1983). The main gains in health were largely achieved in the period 1921 to 1945 when infectious diseases were brought under control and health manpower was expanded. From 1945 to 1970 infectious diseases declined and chronic diseases increased in importance while the quality and efficiency of medical services was enhanced. In this period, hospital deliveries rose to 60% of the total, a counter trend to the general movement towards decentralization of health care. The decade of the 1970s was marked by economic difficulties which limited the purchase power of the health sector and witnessed its decreasing efficiency (Boyd, 1988; Cumper, 1983). High national debt, rising inflation and reductions in public health budget allocations were paralleled by evident declines in the quality of care (Lewis, 1989). Nonetheless, improvements continued in health indicators, perhaps due to more targeted efforts by government health services and the willingness of the public to purchase private medical care. Jamaica managed its improvements in health without serious dependence on external resources, without recourse to modern health technology, and in spite of worsening economic conditions (Cumper, 1983).

The situation today is somewhat bleaker; the Jamaican Weekly Gleaner, reporting on the deterioration of the health care sector, claimed that levels of manpower are inadequate, rates of pay are low, resources are insufficient, and maintenance of equipment is so poor that the efficiency of services is rapidly declining (Anon, 1989). In 1987, on the 25th anniversary of independence and the 10th anniversary of a commitment to primary health care, the Ministry of Health announced a reform program for the national health service which will boost primary health care (Dressekie, 1988).

The Walker study on maternal mortality identified the stage-of-pregnancy at which women died; this helps determine how much of an effect improvements in any particular service might have. 15% of deaths were associated with abortion or ectopic pregnancies, 3% more died undelivered before the 28th week of pregnancy, 13% died before delivery of a potentially viable child, and a further 59% died after delivery of a potentially viable child. Only 4% of the deaths occurred more than 6 weeks after delivery or termination of pregnancy.

### 7.1 FAMILY PLANNING

Voluntary agencies began introducing family planning services in Jamaica

in the 1930s. In 1963, in a governmental "Five-year Independence Plan", the state announced its intention to control population growth by encouraging emigration and the use of family planning services. By 1967 a National Family Planning Board was established to promote and deliver services. A later merge with the Ministry of Health in 1974 was accomplished with mixed results. The responsibilities of each institution were not well defined and priority was given to primary health care by the Ministry of Health (30% of which is services for women--Segree, 1985). Consequent shortages in family planning physicians and staff may have compromised the effectiveness and adequacy of family planning efforts (World Bank, 1987).

Goals for family planning established in conjunction with the World Bank in 1983 include: population not to exceed 3 million by year 2000; attainment of a two-child family by 1990; access to high quality family planning for all men and women of reproductive age; continued improvement in life expectancy to 75 by year 2000; and various economic and social improvements in the areas of employment, housing, etc. (World Bank, 1987). Health sector objectives have been modified to include goals of improving service efficiency to maintain universal coverage of acceptable quality within the limits of the sector budget (World Bank, 1987). Sector efforts in Family Planning are described in more detail in the World Bank report; notably they include cost recovery efforts which involve patient copayments.

The Ministry of Health served about 17% of the target population and the private sector served another 23% in 1982. The resultant contraceptive prevalence was only 40% of all women of reproductive age and 55% of women in union (World Bank, 1987). The vast majority of women (89%) seek family planning services for the first time after they have begun childbearing (Bailey & Powell, 1982). Rural women are more likely to get pills and IUDs, and urban women are more likely to receive "other" contraceptive methods such as foam, diaphragms, and condoms (Bracken & Kasl, 1973). Rural women attending family planning clinics around 1972 tended to have more children than urban women (4.2 versus 3.4 per woman); the types of union and mean age was not different between the two groups.

Studies on utilization of family planning services found that women most likely to drop out were either very young or very old, with few or a large number of living children, were more likely to be single, never had a miscarriage, and whose last pregnancy was not very recent. Religion, social class, and type of contraceptive method were not significant determinants of dropping out. Women were asked directly about their reasons for dropping out; 28% complained about the method, 17% described some aspect of clinic routine, 19% of the reasons involved pregnancy (one-third had been pregnant and didn't know it, about two-thirds had contraceptive failures, a minimum desired pregnancy and purposefully dropped out) (Bracken & Kasl, 1973). Of those that dropped out, 40% continued to use family planning since dropping out. These women were less likely to be from rural areas, were more likely to be married, and more likely to have been pregnant recently or more than three years previously. These women claimed they stopped coming to the family planning clinics because the time was inconvenient; they reported fewer side-effects from the methods they had chosen. Women who continued to use contraception were more likely to use coitus dependent methods and used supplies left over from their last visit, purchased from stores, or obtained from friends (Bracken, 1976). Another study on the use of contraceptives in Kingston (Bailey & Powell, 1982) found that drop out rates were associated



with family size; nulliparous women had the highest rates. The average distance between services and a client's home was also an important determinant for the use of services. The two most popular methods were Depo-Provera and oral contraceptives. A follow-up on that sample found that 37% was pregnant within 2 years of dropping out of services; most claimed they did not want the pregnancy but the majority did not use contraception; 40% of the pregnancies were blamed on contraceptive failure. 25% of the drop outs had continued contracepting on their own or were no longer at risk (ie.: were sterile, not in a sexual relationship, or desired pregnancy).

Abortions are illegal in Jamaica except as deemed medically necessary. Abortions are performed in hospitals though they are not dealt with in a similar way by all hospitals: two have a separate ward, another places the women in the surgical ward, and most Type C's place the women in maternal wards<sup>3</sup>. The variations in practice make it difficult to keep track of all the abortions that are performed. One researcher estimated that the ratio of abortions to live births is about 1:1 (Segree, 1985). This seems to be very high; in a sample of 14-24 year olds, 40% reported a pregnancy and 36% eventually had a live birth (Jamaica-NFPB, 1987). The abortion rates in older women would have to be extremely high, perhaps in conjunction with a high rate of unreported pregnancies, in order to get a ratio of 1:1.

We currently have no information on the cost per method per year; numbers of acceptors; or the rate of STDs treated in clinics.

## 7.2 PRENATAL CARE

Over 95% of mothers in the Perinatal Study had at least one prenatal visit although this could often have only been to confirm the pregnancy (Jamaica-MOH, 1989). The visit was usually at a public facility--most often a health center. First trimester visits were rare, often creating time problems for taking tests and getting the results back. Seventy-three percent of the women had serological tests done and of these over one-fifth delivered before the test results returned. Only 15.7% of the women who obtained prenatal care had a first trimester visit; 66% were first seen during the second trimester. Women who were seen by private physicians were less likely to have records for the stage of pregnancy at time of visit.

According to the preliminary release of results from the Perinatal Study, most women were able to give the date of their last menstrual period; from the dates the clinic staff can monitor the progression of the pregnancy. It was difficult to monitor weight gain however, because very few women know their prepregnancy weight (28%) and few come in early enough in the pregnancy to get an estimate, additionally, many clinics have non-functioning scales (Jamaica-MOH, 1987 and 1989).

The Perinatal Study also noted that the prenatal care rendered was inconsistent in terms of taking tests, retesting positives, and monitoring for common complications such as anemia or hypertensive disorders. Blood pressure readings were lacking for 12.3% of the mothers; hemoglobin tests had been performed on only 61% of the sample; and oedema was often noted in patient records but without appropriate descriptions. In a preliminary release of results from a partial sample of the Perinatal Study, discrepancies were reported between what the women said was done and what

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<sup>3</sup> Types of hospitals are described in Table 1 later in this report.

clinics recorded: 80% of the women reported urinalysis, however, results were noted for 46.2% of the sample. Of those who had results, 68.5% had positive indications for proteinuria (an indication of preeclampsia--perhaps the biggest maternal health risk in Jamaica). 56% of the women had been immunized against tetanus in the present or a preceding pregnancy; immunization status was unknown for 22.5% of the women (Jamaica-MOH, 1987). Given the importance of hypertensive disorders, anemia, and infection in maternal mortality in Jamaica, it is surprising that screening for, and monitoring of, these risk factors is so poor.

The impact of prenatal care on low birth weight and prematurity has been investigated by a number of researchers. Goujon et al. (1984) implemented a prematurity prevention program in the government prenatal clinics of Martinique (see description of original program in Papiernik & Kaminski, 1974 or Papiernik & Vial, 1979). They found that women receiving the free public care fared as well as private patients. This indicated the prenatal care services could overcome socio-economic factors usually responsible for large differences in obstetric performance. The study was unable to answer why a third of the women did not receive either kind of prenatal care; this third group performed far worse on all the outcome measures.

It would be interesting to know more about the activities that women do when they are pregnant and how this changes when there are complications. Knowing more about traditional beliefs surrounding pregnancy could help explain utilization patterns for prenatal care.

### 7.3 DELIVERY AND OBSTETRIC REFERRAL SERVICES

Approximately 75% of the women in the Perinatal Study delivered in public hospitals, 17% at home, 8% in maternity centers (including private nursing homes), and another 1.3% delivered en route in taxi cabs, buses, etc. Hospital births have been increasing over the last decade, and areas served by Type A facilities continue to have lower mortality rates than other parishes (Jamaica-MOH, 1989). Most of the deliveries were attended by midwives (80%), 9% were attended by doctors or medical students, and at least 15.2% were unattended (this could occur in a hospital as well). Spontaneous birth occurred in about 90% of the women and only 4% had caesarean sections (Jamaica-MOH, 1989). Episiotomies were performed on 6.9% of the sample; another 13.2% experienced perineal tears. The use of analgesics during labor is also low and has been limited to the private sector and hospitals; only 12.4% of the sample received pain-killers. Midwives are requesting injectable analgesics but have been refused on the grounds that mortality might rise due to the added risks and the continued constraints in communication and transportation.

There are two kinds of midwives in Jamaica--"nanas" which are from the informal health sector, and "domiciliaries" which are trained by the Ministry of Health. The domiciliaries provide essential prenatal, intranatal, and puerperal services to women regardless of where they deliver. They have recently also been assigned responsibility for child health care. The best available data on these domiciliaries comes from the recent Perinatal Study (Jamaica-MOH, 1989); in this report the domiciliaries are simply referred to as midwives. Twenty-four percent of the registered midwives were interviewed--a sample total of 78 women; 51 of these had graduated prior to 1979 before the midwife training was updated and extended from one to two years, and 87% of the sample worked in rural areas. Urban

midwives delivered a mean of 3.8 babies in homes per year while rural midwives had a mean of 21.5 home deliveries. A mean of only 0.7 deliveries per midwife were unattended in the urban areas compared to a mean of 5.4 unattended deliveries per midwife in rural areas. The unattended deliveries are at especially high risk and reasons for delivering unattended should be identified. Midwives who lived and worked in the same area delivered more babies in homes than midwives who traveled to work; nonetheless, the trends indicate a decreasing reliance on midwives for home delivery.

The performance of midwives in prenatal care was not good in a number of areas. Laboratory tests were underutilized, scores on knowledge tests were mediocre, and emphasis given to various tasks was misplaced. The VDRL test was routinely ordered by all midwives and the test for hemoglobin was ordered routinely by 85.9% of the midwives, 57.7% ordered blood group, 67.9% ordered sickle cell, and less than 5% routinely ordered Rhesus factor, Coombs, and worms tests<sup>4</sup>. Urinalysis was routine with 24.4% and pap smears with 3.8% of the midwives. Twenty-eight percent of the midwives sent pregnant women to private laboratories for required lab tests (Jamaica-MOH, 1987 and 1989). The study also noted time lags in getting results back that were beyond the control of the midwives.

The scores of the midwives on knowledge tests were unremarkable though the result itself was not surprising. Most midwives had graduated from an older curriculum, there was little ongoing supervision, and continuing education is optional and minimal. A risk factor test recorded the percent of women spontaneously listing a particular risk factor; the results for each risk factor were: teenager-69%, women over 35-68%, primiparous-90%, multiparous-87% (51% were able to correctly name the parity which is really at risk), very short women-50%, tall women-24%, previous postpartum hemorrhage-73%, previous abortion-60%, previous stillbirth-41%, previous complications in labor or delivery-51%, coexisting pre-eclampsia-86%, diabetes-81%, heart disease-67%, anemia-60%, and positive VDRL-42%, antepartum hemorrhage-68%, malpresentation-59%, multiple pregnancy-59%, and breech-47%. Other risks were mentioned but by fewer midwives. An "indicators of emergency" test using 11 indicators had the following percents of midwives identifying each indicator: elevated blood pressure, hemorrhage/shock, and fetal distress- around 85%, eclampsia and failure of labor to progress-around 71%, fresh meconium staining-67%, prolapsed umbilical cord-66%, depressed blood pressure-26%, and prolonged rupture of membranes-39%. The survey also tested infant high risk factors and how to care for newborns and mothers, the scores of which are not reported here. Midwives knew most about maternal risk factors and least about newborn's as indicated by the percent of midwives with poor scores: 26% low for maternal risks, 31% for care of newborns, and 33% for newborn risk factors.

Other findings on midwives include insufficient record keeping and reporting of events (and providing certificates) by a large proportion of midwives while simultaneously, many undertake tasks no longer considered necessary such as giving enemas and shaving. Some were unable to perform certain tasks, such as giving vitamin K or eye drops, because they were out

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<sup>4</sup> The VDRL is a common nontreponemal serologic test used for screening syphilis; hemoglobin tests for anemia; the Coombs test provides an indication of the effects of Rhesus incompatibilities.

of supplies. This indicates they lack an understanding of ordering procedures. Finally, most midwives did not conform with the recommended schedule for home visits, over one third made less than 4 visits on average. These visits theoretically make-up the entire post-partum and well baby care and education services. Though few visits are made, it appears midwives are giving complete exams of mother and child when they do visit.

The current level of intervention during delivery is low while perinatal mortality is high. Evidence from Britain suggests infant deaths due to intrapartum anoxia in babies weighing 2500 grams or more are preventable when delivery management is improved (Chamberlain et al., 1975 or 78). The Perinatal Study suggests that over a quarter of deaths are in large babies dying during or shortly after delivery. These deaths are less common in areas served by Type A hospitals. Parallel to those findings are the suggestions that cerebral birth trauma is also less common at Type A hospitals. Cerebral birth trauma was the cause of death in 52 infants of a total 420 weighing at least 2500 g at birth; it is not a major cause of death, but like intrapartum anoxia, it is a preventable one. Earlier referrals, better training, and facilities for delivery and resuscitation are suggested as factors which could spark a reduction in these causes of mortality (Jamaica-MOH, 1987).

#### 7.4 GENERAL SERVICE ISSUES

The training of health professionals is commonly suggested in the literature of all countries as a way to improve health; the situation is no different in Jamaica. One study in Jamaica on health professionals' knowledge of breast feeding found that medical doctors knew the most but shared their information the least. Community health aides, nurses, and domiciliaries had positive attitudes towards the practice but required more practical information (Giugliani et al., 1988). Another critique of the primary health care system claimed the medical education curriculum focuses on the teacher not the learner, and there is a need to simplify (Bollag, 1980). That critique recommended teaching doctors about community health in the earliest parts of their education and training them to communicate more and work better with other health workers.

The government created a cadre of auxiliary health professionals in 1972 called Community Health Aides (CHA) to serve the low-income population through an island-wide network of primary health and nutrition programs. Women with relatively little education were recruited, trained for two months, and returned to their communities. The primary emphasis was greater equity in health service distribution, combatting child malnutrition, and encouraging the timely use of medical facilities. The program was evaluated in 1982 after 10 years of operation (Marchione, 1984). Results found that CHAs met more often with clients when they had a limited geographic area to cover and when there were fewer CHAs per supervisor. Outcome data indicated a positive effect from the program, but a minimal one relative to outside influences. Politics for example supervened; the best performance on outcomes was in Hanover parish, the site of an international demonstration project which was given twice the usual density of CHAs. Other outside factors with strong links to improved health outcomes include: access to jobs, land, income, and a strong household social support system.

The mean distance from home to a health center in Jamaica is 2.4 miles in all but one parish, and 90% of the population lives within a 10 mile

walking radius of a health center. Hospital services are available through a network of 20 hospitals locally labeled Type A, B or C according to decreasing levels of specialization. Type C hospitals provide basic maternal, and general medical and surgical services. The three Type A-tertiary-hospitals provide specialist obstetrical, neonatal, and pediatric care and are located in Kingston and Montego Bay. Seven parishes have specialized health centers known as rural maternity centres and which provide intranatal services (See map and Table 1 for more detail). Women frequently cross boundaries to deliver babies.

The cost and quality of transportation is making it difficult for midwives to see clients and is probably making it difficult for many women to get services. In a preliminary release of information from the Perinatal Study, 73.1% of midwives said that the lack of mobility was a problem (Jamaica-MOH, 1987); 78.2% walked, 26.9% used taxis, 39.7% took a bus, 9% owned a car, and 2.6% used government vehicles. About 45% of the midwives claimed it took more than an hour to get public transportation. Compounding the problem of poor transportation in the face of an emergency is the lack of communication; 56.4% of the midwives were not within a 1-2 mile radius of a telephone or radio, 94.3% of midwives communicated using messengers (Jamaica-MOH, 1987).

Because of untidy or partial record keeping, tracking of women through the various services and referrals is difficult (Jamaica-MOH, 1987). Women are sometimes given a record book which they take to a hospital when the midwife sends them for referral care but the record is not returned and the midwife has no way of following up what was done later on. The Perinatal Study could not confirm reported prenatal visits because of misplaced records or in some cases, because the institution kept none.

The Ministry of Health expenditure per capita declined from \$35 to \$20 between 1981 and 1985. During that time, health care was provided free to the population with little regard for ability-to-pay. Nominal fees were charged for inpatient and outpatient services at public hospitals but fees were often not collected and hence accounted for very little of the revenues (Folta, 1988). Since that time there have been moves to increase the revenues of hospitals by improving the user fee system. When revenues from this source were deposited in a central office the earnings represented between 1 and 4% of hospital budget allocations; policy changes allowing hospitals to retain some of the user fee revenues have resulted in increases such that these earnings represent 6 to 28% of hospital operating budgets. Further recommendations for more revenue gains include stricter means testing and higher fees for those that are able (Lewis, 1989). There are dangers that go along with instituting higher fees however. Of particular concern is the fact that more women are relying on hospitals for delivery. A small 12 to 15 percent of the population currently has private medical insurance (Lewis, 1988) and could see private practitioners or pay higher fees. Most of the population, and particularly the young, rely on public hospitals and public clinics (Lewis, 1988); efforts to raise revenues could very easily block the access to services for at-risk groups.

In order to estimate further gains that are possible in the area of maternal health it would be helpful to know more about the present costs of: staff, transport, training, supervision, equipment, health education, construction, and vehicles.

### 8 GAPS THAT CAN BE FILLED

This section outlines the immediate progress Jamaica can make if it now applies what we know can be done for maternal health. This includes monitoring services so that what has already been planned is properly implemented, and adds to this a few revisions in service models to make them work more efficiently.

The largest known groups of avoidable factors in maternal mortality for Jamaica are: (1) non-use of and deficiencies in prenatal care; (2) inadequacy in ensuring hospital delivery for women at high-risk; and (3) delays in taking action when signs of complication develop before, during, and after pregnancy (Walker et al., 1986). This would indicate that a prenatal education and screening program with an emphasis on enrolling new participants could have a great effect. Indeed prenatal care could provide a number of services: women could be warned of danger signals to watch for and could be instructed in basic health maintenance behaviors including appropriate nutrition; those at risk could plan to deliver at a health facility with capacity for transfusions and surgery; and all women could be instructed to set up an emergency plan in case they have unexpected complications. The Walker report (1986) said however that much of the prenatal care that did occur was deficient and the blame for this was given to the midwives; referrals to hospitals were not made, standard tests not performed (substantiated in the Perinatal Study (Jamaica-MOH, 1989)), delays were apparent in starting drug therapy for pre-eclamptic women and there were delays in doctors' response to calls for aid in hemorrhage cases. Pulmonary embolism deaths were largely the result of insufficient attention to warning signs. Before prenatal care can have an effect then, it must be improved in context, which involves in-service training of existing midwives and improving the supervision of them while they are working (note: Domiciliary supervisors were introduced in 1983-84 but have not been effective (Jamaica-MOH, 1987)).

A study of the quality of infant care (Walker et al., 1988) and another on the quality of care for twelve tracer conditions (Walker & Wint, 1987), in Jamaica, also recommended that important improvements could be made at this time through the implementation of quality assurance, revised education of doctors and nurses, and attention to the professional isolation of rural practitioners. These improvements work with the present system and would not require heavy investments in additional resources. The Ministry of Health already responded by agreeing to draw up new standards for care and criteria for referrals, to review blood transfusion provisions, and to provide a senior obstetrician to visit smaller hospitals and review practices there (Walker & Wint, 1987).

The gap between readily available family planning services and use of the services by target groups could also be filled though the means to achieving this may be elusive. The demand for sterilization, conversely, exceeds the demand; five-month waits are typical for public facilities. The tubal ligations are done, moreover, in hospitals under general anaesthesia which is more costly than on an outpatient basis (Folta, 1988).

### 9 DISCUSSION

This review was undertaken to locate questions which might be undertaken in future investigations of maternal health in Jamaica. The recent Perinatal Study undertaken by the Ministry of Health adds much to this area of

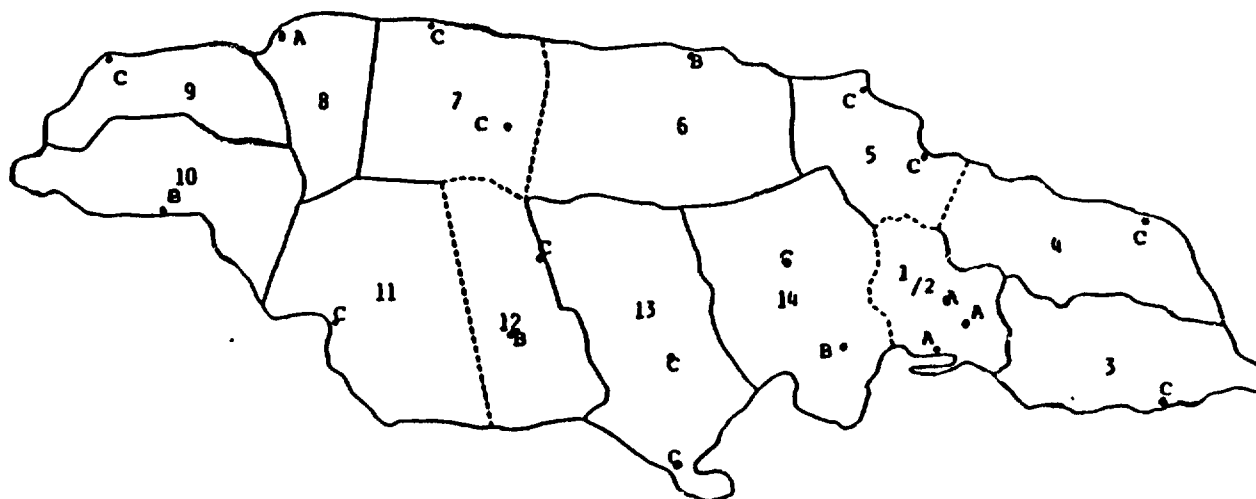
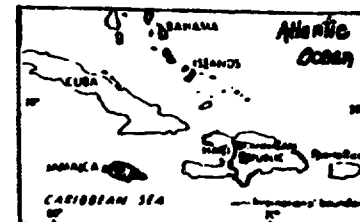
knowledge and further analyses of the data they gathered should answer a number of questions proposed in the body of this report. Remaining areas that could be incorporated into an outside investigation include the impact of care according to its content and quality; effect of service prices on utilization; the relationship of maternal health, health care received, and infant outcomes; and developing a true understanding of utilization patterns and determinants for use of maternal health services.

The Jamaican Ministry of Health has reported that 90% of its population has access to primary health care, because 90% live within ten "walking" miles of a clinic. In the case of a woman delivering at home and finding she has an obstructed labor causing hemorrhage, this is not access. She will be unable to get to a clinic in the few minutes available before she bleeds to death. There must be provisions for camping out near a delivery facility for women at-risk and delivering then in medical safety, and there must also be mechanisms for emergency transport in the event of unexpected complications. Future studies might investigate the experiences of women in terms of being referred and finding adequate transport. What would have been their emergency plans had things gone wrong? Another angle to the same question is, "Did the hemorrhaging woman know she was at risk, and could she have taken any steps to avoid her precarious predicament?" Future studies could investigate whether a woman knows signs of risk, whether she identified these in herself, and how she acted on them.

Another interesting area for future studies is the relationship of union status to the health of women and the outcomes of pregnancy. The roots behind current union practices are deep; men have played minor roles as heads of families since the slavery period. Women regarded marriage with suspicion as a sign of subordination to men and practiced circumspect abortions to avoid the birth of slave children (Brody, 1981). There is a distrust between men and women that continues in some circles today and could have an impact on health outcomes and could serve to undermine the community spirit that is necessary to enact social reforms which safeguard health. Family planning particularly relies on good relationships between men and women. Understanding the motivations and relationships of couples in the unions most at risk could provide insights on how to reach them with maternal health programs.

Scale miles

# JAMAICA: PARISHES, REGIONAL ADMINISTRATIVE AREAS AND DISTRIBUTION OF HOSPITALS



## Parishes and Project Administrative Regions

### West

10 - Westmoreland  
9 - Hanover  
8 - St. James  
7 - Trelawny

### South

11 - St. Elizabeth  
12 - Manchester  
13 - Clarendon

### North East

6. St. Ann  
5. St. Mary  
4- Portland

### South East

14- St. Catherine  
1/2 Kingston and St. Andrew  
3 - St. Thomas

### Hospitals

A - Tertiary

B - Paed. Ob, GM, GS

C - Midwifery, GM, GS



Table 1

Distribution, Number, Personnel, Catchment Area, and Service  
Provided at All Levels of the Public Health Care System

Health Center/ Hospital Level	Number	Level of Personnel	Location/ Immediate Catchment Area	Services Provided
Type I	203	Midwife, 2 CHW <sup>1</sup>	4,000-5,000 population	MCH home visits
Type II	89	Public health nurse, public health inspector; RN, MD and dentist visit	10,000-12,000 population	Curative, preventive and promotive
Type III	78 <sup>2</sup>	MD, nurse practitioner & dentist (who also serve Type II centers)	Parish center	Curative and preventive at more sophisticated level
Type IV	2	Combination of Type III center and the parish office	Parish center	Curative and preventive at more sophisticated level
Type V	2	MD, specialists, nursing care, dentist	Undefined	Specialty out-patient care and public health
Type C Hospitals	11	Basic, district hospital with X-ray & lab. Surgeon for emergency; 2-3 MDs	Parish center	Inpatient and out-patient care in medicine and MCH
Type B Hospitals	4	MD specialists	Urban centers	Inpatient and out-patient, specialist service at least in surgery, internal medicine, OB/GYN, and pediatrics
Type A Hospitals	5 <sup>3</sup>	MD specialists	Kingston, Montego Bay	Full range of secondary and tertiary care
Other	4 <sup>4</sup>	MD specialists	Kingston	Chronic or specialized care

Source: PHC Unit, Ministry of Health, 1986; in Lewis, 1988.

- 1 CHW = community health workers.
- 2 Includes Type III and IV together.
- 3 Includes University of the West Indies Hospital, Victoria Jubilee Maternity, and Children's.
- 4 Psychiatric, Chest, Cancer, and Rehabilitation hospitals.

## REFERENCES

- \_\_ "Jamaica Discusses Its Health Care Problems." Market Letter 1/16/1989.
- Abbas AA & Walker, GJA. "Determinants of the Utilization of Maternal and Child Health Services in Jordan." International J Epidemiology 15(3) 1986:404-407.
- Abrams, RS. Handbook of Medical Problems During Pregnancy. Norwalk, CT: Appleton and Lange, 1989.
- American Nurses Association. "Access to Prenatal Care: Key to Preventing Low Birthweight." Report of Consensus Conference, 1987.
- Baer, Edward C. "Promoting Breastfeeding: A National Responsibility." Studies in Family Planning 12(4) 1981:198-206.
- Bailey, Wilma & Powell, Dorian "Patterns of Contraceptive Use in Kingston and St Andrew, Jamaica, 1970-1977." Social Science & Medicine 16(19) 1982:1675-1683.
- Bailey, Wilma "Child Morbidity in the Kingston Metropolitan Area, Jamaica 1983." Social Science & Medicine 26(11) 1988:1117-1124.
- Bamisaie, A.; Ransome-Kuti, O; & Famewura, AA. "Waiting Time and its Impact on Service Acceptability and Coverage at an MCH Clinic in Lagos, Nigeria." J Tropical Pediatrics 32 1986:158-161.
- Blake, J Family Structure in Jamaica New York: Free Press, 1961.
- Bollag, U. "Primary health care at the community level: the involvement of the doctor." Tropical Doctor 10(1) 1980:46-48.
- Boyd, Derick C. Economic Management, Income Distribution, and Poverty in Jamaica NY: Praeger, 1988.
- Bracken, Michael B. "Contraception and pregnancy after Dropping Out of Family Planning Clinics: A National Interview Survey in Jamaica." Social Biology 23(1) 1976:55-65.
- Bracken, Michael B. & Kasl, Stanislav V. "Factors Associated with Dropping out of Family Planning Clinics in Jamaica." American J of Public Health 63(3) 1973:262-271.
- Brody, Eugene B. Sex, Contraception, and Motherhood in Jamaica Cambridge, MA: Harvard U Press, 1981.
- Campbell, Horace "Rastafari: Culture of Resistance." Race & Class (1) 1980:1-22.
- Children's Defense Fund. The Health of America's Children: Maternal & Child

Health Data Book Washington, DC: CDF, 1988.

Creedy, BS & Polgar, S "Returning for Yearly Check-ups: A Study of 22,000 Family Planning Clients." New York: Planned Parenthood-World Population, 1963.

Cumper, G.E. "Jamaica: A case study in health development." Social Science & Medicine 17(24) 1983:1983-1993.

Datta, SP; Srinivas, DK; Kale, RV & Rangaswamy, R. "Evaluation of Maternal and Infant Care in a Rural Area." Indian J Medical Sciences 27(2) 1973:120-128.

Dressekie, Dorrell. "Primary Health Care in Rural Jamaica." JRSH 6 1988:213.

Folta, Eleanor. personal communication 9/27/1988.

Fonaroff, Arlene "Cultural Perceptions and Nutritional Disorders: A Jamaican Case Study." Bulletin of the PAHO 9(2) 1975:112-123.

Fortney, JA. "The importance of Family Planning in Reducing Maternal Mortality." Studies in Family Planning 18(2) 1987:109-115.

Giugliani, Elsa R.J; Lovel, Hermione; & Ebrahim, G.J. "Attitudes, Practices and Knowledge of Health Professionals on Breastfeeding in Kingston, Jamaica." J of Tropical Pediatrics 34(4) 1988:169-173.

Goujon, H; Papiernik, E; & Maine, D; "The prevention of preterm delivery through prenatal care: an intervention study in Martinique." Intl J of Gynaecology & Obstetrics 22(5) 1984:339-344.

Grantham-McGregor, S.M; Powell, C; Stewart, M; & Schofield, W.N. "Longitudinal Study of Growth and Development of Young Jamaican Children Recovering from Severe Protein-energy Malnutrition." Developmental Medicine & Child Neurology 24(3) 1982:321-331.

Hall, MF "Field Effectiveness of the Oral and Intrauterine Methods of Contraception." Milbank Mem Fund Quart 47 1969:55.

Hay, David M. & Boyd, John J. "A Study of the Obstetric Performance of the Adolescent Jamaican Primigravida." American J of Obstetrics & Gynecology 116(1) 1973:34-38.

Hayes, Janice S; Dreher, Melanie C; & Nugent, J Kevin. "Newborn Outcomes with Maternal Marijuana Use in Jamaican Women." Pediatric Nursing 14(2) 1988:107-110.

Herz, B & Measham, AR. "The Safe Motherhood Initiative: Proposals for Action." World Bank Discussion Papers, #9. Washington, D.C., 1987.

Hogg, Donald W. "Magic and Science in Jamaica." (Paper read at Annual

Meeting of the American Anthropological Association, November 20, 1958, Washington D.C.) Caribbean Studies 1(2) 1961:1-5.

Jamaica, Ministry of Health. "Perinatal Mortality and Morbidity Survey" Report of the Preliminary Findings, Dec. 1987.

Jamaica, Ministry of Health. "The Perinatal Mortality and Morbidity Survey, Jamaica." Final Report, July 1989.

Jamaica, National Family Planning Board. "Report of the Jamaica Contraceptive Prevalence Survey:1983." August, 1984.

Jamaica, National Family Planning Board. "Young Adult Reproductive Health Survey, Jamaica, 1987." Preliminary Report, Sept. 1987.

Jelliffe, DB "Child Nutrition in Developing Regions" US Government Publication No. 1822. Washington DC: US Govt. Printing Office, 1968.

Leslie, J & Gupta, G. "Utilization of Formal Services for Maternal Nutrition and Health Care." Washington, DC: International Center for Research on Women, 1989.

Lettermaier et al., "Mothers' Lives Matter: Maternal Health in the Community." Population Reports Series L, No 7; 16(2) 1988.

Lewis, Maureen. "Financing Health Care in Jamaica." The Urban Institute, Washington DC, Nov, 1988. Rept # 3714-04. (DRAFT)

Lewis, Maureen. "Government Policy and the Effectiveness of User Charges in Jamaican Hospitals." The Urban Institute, Washington, D.C., March, 1989. Rept 3714-05. (DRAFT)

Lofgren, O & Polberger, S. "Perinatal Mortality: Changes in the Diagnostic Panorama, 1974-1980." Acta Paediatrics Scand 72 1983:327-332.

Long, Joseph K. "Jamaican Medicine: Choices between Folk Healing and Modern Medicine." Unpubl., PhD dissertation, University of North Carolina, 1973.

MacCormack, C.P. "Lay Concepts Affecting Utilization of Family Planning Services in Jamaica." J of Tropical Medicine & Hygiene 88(4) 1985:281-285.

Maine, D. Family Planning: Its Impact on the Health of Women and Children New York: Columbia Ctr for Population & family Health, 1981.

Marchione, Thomas J. "Evaluating Primary Health Care and Nutrition Programs in the Context of National Development." Social Science & Medicine 19(3) 1984:225-235.

McNeil, Pamela; Olafson, Freya; Powell, Dorian L; and Jackson, Jean. "The Women's Centre in Jamaica: An Innovative Project for Adolescent Mothers." Studies in Family Planning 14(5) 1983:143-149.

Melville, B.F; Lawrence, O; Williams, M; Archer, E; Francis, V; & Collins, L. "Feeding Practices of Infants, and Beliefs of Mothers in Western Jamaica." West Indian J of Medicine 36(2) 1987:68-72.

Mitchell, M. Faith "Popular Medical Concepts in Jamaica and their Impact on Drug Use." The Western J of Medicine 139(6) 1983:841-847.

Monteith, RS; Warren, CW; Stanziola, E; Urzua, RL; & Oberle, MW. "Use of Maternal and Child Health Services and Immunization Coverage in Panama and Guatemala." Bull PAHO 21(1) 1987:1-15.

Morrison, JC "Sickle-Cell Disease." IN Queenan & Hobbs (eds) Protocols for High Risk Pregnancy Ordell, JJ: Medical Economics, 1987.

Papiernik, E & Kaminski, M "Multifactorial study of the risk of Prematurity at 32 Weeks of gestation: A Study of the frequency of 30 Predictive Characteristics." J Perinat Med 2 1974:30.

Papiernik, E & Vial, M "Problemes actuels de la prevention de la prematurite." Med Hyg 2 1979:1658.

Poddar, D; Maude, G.H; Plant, M.J; Scorere, H; & Sergeant, G.R. "Pregnancy in Jamaican Women with Homozygous Sickle Cell Disease: c Fetal and Maternal Outcome." British J of Obstetrics and Gynecology 93(7) 1986:727-732.

Powell, Dorian; Leslie, Joanne; Jackson, Jean; & Searle, Karen. "Women's Work, Social Support Resources, and Infant Feeding Practices in Jamaica." International Center for Research on Women, December, 1988.

Ratnam, SS & Prassad, RNV "Inadequacies of Present Health Services and Strategies to Improve Maternal and Child health in Developing Countries." International J Gyn Obst 22(6) 1984:463-466.

Reynolds, J "Final Report on the Pretest of the Trinidad and Tobago National Family Planning Programme Follow-Up Study." New York: International Institute for the Study of Human Reproduction, 1970.

Roberts, GW & Sinclair, S. Women in Jamaica New York: KTO Press, 1978.

Rosenfield, A. & Maine, D. "Maternal Mortality--a neglected tragedy. Where is the M in MCH?" The Lancet 1985:83-85.

Royston, E & Lopez, AD. "On the Assessment of Maternal Mortality." World Health Statistics Quarterly 40 1987:214-224.

Seaga, Edward "Jamaica's Primitive Medicine." Tomorrow Quarterly: Review of Psychical Research 3 1956:70-78.

Segree, Winsome. "Health Problems of Women in Jamaica." (Plenary Address, First International Congress on Women's Health Issues, Halifax, Nova Scotia, October 4, 1984.) Health Care for Women International 6 1985:225-238.

Sheffer, M.L; Grantham-McGregor, S.M; & Ismail, S.J. "The Social Environment of Malnourished Children Compared with that of other Children in Jamaica." J of Biosocial Science 13(1) 1981:19-30.

Simmons, Willam K; Jutsum, Peter J; Fox, Kristin; Spence, Margaret; Gueri, Miguel; Paradis, Rejean; Gurney, J Michael. "A Survey of the Anemia Status of Preschool Age Children and Pregnant and Lactating Women in Jamaica." The American J of Clinical Nutrition 35(2) 1982:319-326.

Simmons, W.K. "Programmes for the Prevention of Anemia in Jamaica." West Indian Medical Journal 29(1) 1980:15-21.

Singh, Shusheela "Evaluation of the Jamaica Fertility Survey, 1975-1976." Scientific Reports No.34 World Fertility Survey London: International Statistical Institute, July 1982.

Starrs, A. "Preventing the Tragedy of Maternal Deaths." A report on the International Safe Motherhood Conference, Nairobi, Kenya, Feb., 1987.

Stycos, JM & Back, KW The Control of Human Fertility in Jamaica Ithaca: Cornell Univ Press, 1964.

Vadies, Eugene & Clark, Jeremy. "Comprehensive Adolescent Fertility Project in Jamaica." PAHO Bulletin 22(3) 1988:240-249.

Walker, Godfrey J.A; Ashley, Deanna E.C; & Hayes, Richard J; "The Quality of Care is Related to Death Rates: Hospital Inpatient Management of Infants with Acute Gastroenteritis in Jamaica." American J of Public Health 78(2) 1988:149-152.

Walker, G.J.A & Wint, B. "Quality Assessment of Medical Care in Jamaica." World Health Forum 8 1987:520-524.

Walker, Godfrey J.A; Ashley, Deanna E.C.; McCaw, Affette M.; & Bernard, G. Wesley. "Maternal Mortality in Jamaica." The Lancet 1(8479) 1986:486-488.

Walsh, J; Naschak, C; Measham, A; & Gertler, P. "Maternal and Perinatal Health Problems." IN Jamison, ed. Health Sector Priorities Review World Bank, in process.

Weston, L. "Reducing Maternal Deaths in Developing Countries." PHN Technical Note 86-19., World Bank, May 1986.

World Bank. "Staff Appraisal Report, Jamaica: Population and Health Project." Report No. 6162-JM, Population, Health & Nutrition Department, Div III, May 1, 1987.

World Health Organization. Maternal Mortality Rates: A Tabulation of Available Information WHO, Div. Family Health, Geneva 1986.

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